

USSR

SYSOYEVA, V. S., and CHUMAK, G. A., Moscow

UDC 621.787

"Residual Stresses at Strain Hardening of High-Strength Steels"
Kiev, Problemy Prochnosti, No5, May 73, pp.79-84

Abstract: The changes of residual stresses, of fatigue strength at asymmetric cycle of load ($\tau_{\min}=5\text{kg/mm}^2$), and of elastic properties on twisting of specimens, 12 mm in diam., of medium-carbon and medium-alloy steels 40Kh1NVA and 45 KhMFA, were investigated for the case of hardening by rolling and complex hardening by rolling and fivefold twisting of ready made specimens through an angle ϕ_{tw} , which considerably exceeded the angle ϕ on the proportionality limit of the material. The investigation results at static and cyclic twisting are reported and the changes of fatigue strength, torsional strength, proportionality limit, and residual stresses at various hardening schemata are discussed by reference to diagrams. The strain hardening is considered a determinant permitting an effective use of high-strength steel for heavily stressed machine parts and providing their reliable operation. The increase of the supporting power of high-strength steels by strain hardening is determined by the common action of residual stresses and self-hardening of the material. Five figures, two tables, three bibliographic references.

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UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--THE COAGULATION PROPERTIES OF THE BLOOD IN THE PLEURAL CAVITY -U-
AUTHOR--(04)--NIKITIN, YU.P., SHUNKOVA, YE.I., SEVERNIIY, V.YA.,
SYSGYEVVGRUBYEV, A.N.

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 6, PP 76-80

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BLOOD COAGULATION, LUNG, SURGERY, FIBRINOLYSIS, THROMBOCYTE,
ERYTHROCYTE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
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STEP NO--UR/0531/70/000/006/0076/0080

CIRC ACCESSION NO--AP0129152

UNCLASSIFIED

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CIRC ACCESSION NO--AP0129152
ABSTRACT/EXTRACT--(C) GP-0-

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT. INVESTIGATION OF THE BLOOD
RECOVERED FROM THE PLEURAL CAVITY SOON AFTER A THORACIC OPERATION WAS
CARRIED OUT. THERE WERE REVEALED A FIBRINOGENEMIA, A HIGH FIBRINOLYTIC
ACTIVITY, AND AUGMENTED TOTAL COAGULATION AND ANTIHEPARIN ACTIVITY.
THERE WERE FOUND NO ANTITHROMBINS IN THIS BLOOD. THE REFERRED TO
ALTERATIONS ARE EXPLAINED BY THE EFFECT OF ACTIVATOR OF PLASMINOGEN
PRODUCING MESOTHELIUM, AND BY DESTRUCTION PRODUCTS OF THROMBOCYTES AND
ERYTHROCYTES.
FACILITY: NOVOKUZNETSKIY INSTITUT
USOVERSHENSTVOVANIYA VRACHEY, 1-YA GORODSKAYA KLINICHESKAYA BOL'NITSA.

UNCLASSIFIED

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UR 0533

TITLE-- AIRCRAFT PRODUCERS ARE PLANNING FOR TOMORROW
NEWSPAPER-- SOTSIALISTICHESKAYA INDUSTRIYA, MARCH 20, 1970, P 1,
COLS 3-8

ABSTRACT-- APOLON SERGEYEVICH SYSTSOV, CHIEF ENGINEER OF THE
TASHKENT AIRCRAFT PLANT IMENI CHKALOV, TELLS A REPORTER ABOUT THE
REACTION OF HIS PLANT PERSONNEL TO THE LETTER "ON THE MORE EFFICIENT
UTILIZATION OF THE PRODUCTION POTENTIAL AND GREATER SAVINGS IN THE
NATIONAL ECONOMY". ACCORDING TO HIM, THE ENTIRE PRODUCTION OPERATION
IS BEING ANALYZED AND MEASURES ARE BEING DEVELOPED WHICH ARE DESIGNED
TO INCREASE LABOR PRODUCTIVITY, TO IMPROVE THE QUALITY AND TO REDUCE
THE COST OF PRODUCTION. IN STRESSING CLOSE TIES WITH RESEARCH INSTI-
TUTES, SYSTSOV REVEALED THAT IN 1969 THE PLANT LET OUT 35 CONTRACTS
TO VARIOUS INSTITUTES TO THE AMOUNT OF 300,000 RUBLES. THE PLANS FOR

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1970 CALL FOR DOUBLING THIS AMOUNT. IN ADDITION TO THAT, LAST YEAR THE PLANT DEVELOPED SOME 200 SOLUTIONS CONCERNING TECHNOLOGICAL PROBLEMS AND MORE THAN 1,000 SOLUTIONS CONCERNING SCIENTIFIC MANAGEMENT OF LABOR. THESE MEASURES WILL INCREASE THE PRODUCTION OUTPUT BY 35 PERCENT WITH ONLY 2 PERCENT INCREASE IN MANPOWER. THE PLANT'S 1970 PLAN FOR THE INTRODUCTION OF NEW TOOLS AND EQUIPMENT CALLS FOR 400 INNOVATIONS. THE ADDITIONAL PLAN, WHICH IS CURRENTLY BEING DEVELOPED WILL HAVE APPROXIMATELY JUST AS MANY.

THE PLANT HAS ESTABLISHED A LARGE COMPUTATION CENTER AND IS STRESSING THE RELIABILITY AND LONGER LIFE OF AIRCRAFT IT PRODUCES.

19700664

USSR

UDC: 621.327.4.032.212

IGNAT'YEV, V. G., ISAYEV, L. A., SYSUN, V. V.

"A Gas-Discharge Light Source With End-Face Emission Output"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 10, Apr 72, Author's Certificate No 332523, Division H, filed 4 Aug 70,
published 14 Mar 72, p 212

Translation: This Author's Certificate introduces: 1. A gas-discharge light source with end-face emission output. The lamp contains a tubular envelope filled with working gas, and electrode assemblies mounted on its opposing ends. One of the electrode assemblies is made in the form of a hollow cylindrical part with an optically transparent window in one end face for emission output. As a distinguishing feature of the patent, in order to bring the output emission as close as possible to that of an absolutely black body, to increase the efficiency of conversion of electrical energy to directional emission, to reduce the overall dimensions, and to form a platform with constant energy brightness, the opposite electrode is made in the form of a flat mirror surrounded at the periphery by a projecting ring which acts as the working surface of the electrode. 2. A

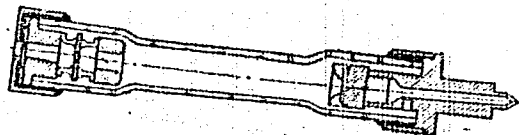
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IGNAT'YEV, V. G. et al., USSR Author's Certificate No 332523

modification of this light source distinguished by the fact that the hollow electrode assembly is made up of two parts, the working part being separated by a slit diaphragm from the carrier part and the window for emission output.



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USSR

SYSHIN, V. V., BASOV, Yu. G., ROLDUGIN, V. I.

UDC: 621.327.52

"A Gas-Discharge Light Source"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy, Tovarnyye Znaki,
No 11, Apr 72, Author's Certificate No 333630, Division H, filed 30 Jul 70,
published 21 Mar 72, p 210

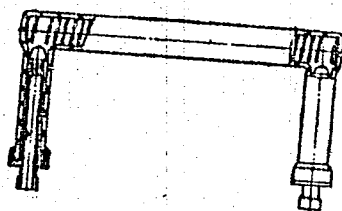
Translation: This Author's Certificate introduces: 1. A gas-discharge light source which contains electrode units built into a discharge tube filled with working gas. The tube is made of an optically transparent material, and the walls contain and stabilize the discharge channel. As a distinguishing feature of the patent, the maximum specific energy of the discharge is increased by increasing the surface containing the plasma. Mounted inside the discharge section of the tube is a helix of optically transparent material whose longitudinal axis coincides with that of the discharge channel. 2. A modification of this light source distinguished by the fact that the turns of the helix have their lateral surface in contact with the walls of the discharge section of the tube. 3. A modification of the source covered in points 1 and 2 distinguished by the fact that at least two-thirds of the wall surface of the discharge section of the tube are shaded by the helix. 4. A modification of the source covered in point

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SYSUN, V. V. et al., USSR Author's Certificate No 333630

1 distinguished by the fact that the helix is made of a more refractory material than the discharge tube, e. g. of fused quartz.



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USSR

ZHANABERGENOV, K. KH., SYTAYA, YE. P.

UDC 537.533

"Investigation of the Thermoemission Properties of the Faces of a Tungsten Monocrystal by the Methods of Electron and Ion Emission"

Izvestiya Vysshikh Uchebnykh Zavedeniy Fizika, No 6, 1970, pp 7-11

Abstract: The emission properties of a densely packed (110) face and a friable (111) face of a tungsten monocrystal were studied by means of specimens in the form of strips in flat-shaped instruments, with a residual gas pressure of 1×10^{-9} mm Hg. The design of the instrument permitted the simultaneous measurement of the emission currents of two specimens. The orientations of the specimens were determined by means of chemical etching and x-rays. The most probable values of $\phi(hkl)$ for homogeneous faces (110) and (111) were found by the method of thermoelectronic emission and by positive surface ionization of lithium atoms. For faces (110) this value was 5.30 ± 0.03 electron volts; and for faces (111), 4.20 ± 0.02 electron volts. The maximum for faces (111) observed on a graph of $\lg I^+ = f(5040/T)$ in the range of temperatures below $1500^\circ K$ is explained

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ZHANABERGENOV, K. ZH, et al, Izvestiya Vysshykh Uchebnykh Zavedeniy
Fizika, No 6, 1970, pp 7-11

according to L. N. Dobretsov by an increase in the work function
of this surface for small values of coatings by lithium adatoms.

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UNCLASSIFIED
TITLE--EFFECTIVE RESISTANCE OF AN IMPERFECT SUPERCONDUCTOR OF THE SECOND
KIND IN AN OSCILLATING MAGNETIC FIELD -U-
AUTHOR--(05)-ANDRIANOV, V.V., ZENKEVICH, V.H., KURGILOV, V.V., SYTCHEV,
V.V., TERHOVSKIY, F.F.
COUNTRY OF INFO--USSR
PROCESSING DATE--27NOV70
SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
NR 5, PP 1523-1531
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SUBJECT AREAS--PHYSICS
TOPIC TAGS--SUPERCONDUCTOR, OSCILLATION, MAGNETIC FIELD EFFECT, DIRECT
CURRENT
CONTROL MARKING--NO RESTRICTIONS
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CIRC ACCESSION NO--AP0127656

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE EFFECT IS INVESTIGATED OF AN EXTERNAL OSCILLATING MAGNETIC FIELD ON THE DIRECT CURRENT FLOWING IN AN IMPERFECT SUPERCONDUCTOR OF THE SECOND KIND. IT IS FOUND THAT WHEN THE VARIABLE COMPONENT OF THE EXTERNAL FIELD AMPLITUDE EXCEEDS A CERTAIN THRESHOLD VALUE AN EFFECTIVE DIRECT CURRENT RESISTANCE ARISES. THE DEPENDENCE OF THIS QUANTITY ON OSCILLATING FIELD FREQUENCY, AMPLITUDE OF VARIABLE COMPONENT, MAGNITUDE OF CONSTANT COMPONENT AND VALUE OF DIRECT CURRENT FLOWING IN THE SUPERCONDUCTOR IS DETERMINED. THE DEPENDENCE OF THE THRESHOLD AMPLITUDE OF THE EXTERNAL FIELD ON CURRENT AND FIELD STRENGTH IS INVESTIGATED. A THEORY IS PROPOSED WHICH EXPLAINS THE EXPERIMENTAL RESULTS. FACILITY: INSTITUT VYSOKIKH TEMPERATUR, AKADEMII NAUK SSSR.

UNCLASSIFIED

USSR

SYTENKO, T.N., DMITROV, M.L., LYASHENKO, V.I.

UDC 525.215.1:621.319.4

"Residual Photoconductivity Of Gallium Arsenide At Cryogenic Temperatures"

Fiz. i tekhn. poluprovodnikov (Physics And Technology Of Semiconductors), 1971, No 6, pp 1217-1219 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10B244)

Translation: The effective capacitance of the structure metal-mica-apoxy resin-n-CsAs was measured at temperatures to 10° K with strong illumination in the intrinsic region of the semiconductor. It is discovered that the initial effective capacitance of a capacitor increases during illumination by 2-5 picrofarad/cm² and after shutting off the illumination the specimens maintain residual photoconductivity. The properties of the residual photoconductivity are established and an explanation of them is given. 6 ref. N.S.

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"APPROVED FOR RELEASE: 08/09/2001

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UNCLASSIFIED

PROCESSING DATE--23OCT7

TITLE--EXPERIMENTAL HOMOTRANSPLANTATION OF THE URINARY BLADDER -U-

AUTHOR--(02)--SYTENKO, V.B., KEYSEVICH, L.V.

COUNTRY OF INFO--USSR

SOURCE--UROLOGIYA I NEFROLOGIYA, 1970, NR 3, PP 22-25

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ORGAN TRANSPLANT, HOMOTRANSPLANTATION, GENITOURINARY SYSTEM,
EXPERIMENTAL SURGERY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

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CIRC ACCESSION NO--AP0120654

STEP NO--UR/0606/70/000/003/0022/0025

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002203220015-4"

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CIRC ACCESSION NO--AP0120654
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--23OCT7

ABSTRACT. THE AUTHORS PERFORMED
HOMOTRANSPLANTATION OF THE URINARY BLADDER IN 51 RABBITS AND 35 DOGS.
SUBTOTAL RESECTION OF THE URINARY BLADDER WAS FOLLOWED BY CROSS
HOMOTRANSPLANTATION OF THE BLADDER, OR BY TRANSPLANTATION OF A FRESHLY
PRESERVED BLADDER, OR OF A BLADDER OF SACRIFICED ANIMALS PRESERVED AT A
TEMPERATURE MINUS 79DEGREESC IN A SPPRESERVATIVE. RABBITS WERE KILLED
AT PERIODS RANGING UP TO 90 DAYS, AND DOGS, UP TO 370 DAYS. FOUR DOGS
ARE STILL UNDER OBSERVATION. INSTRUMENTAL, ROENTGENOLOGICAL AND
MORPHOLOGICAL STUDIES WERE CARRIED OUT. SATISFACTORY RESULTS OBTAINED
POINTED TO THE EXPEDIENCY OF FURTHER INVESTIGATIONS, BOTH UNDER
EXPERIMENTAL AND CLINICAL CONDITIONS. FACILITY: OTDEL OPUKHOLE
I LUCHEVOY TERAPII KIEV. N-I INSTITUTA ZABOLEVANIY POCHKEK I MOCHEVYKH
PUTEY AND LABORATORIYA KONSERVATSII I TRANSPLANTATSII TKANEY I ORGANOV
KIEV. N-I INSTITUTA GEMATOLOGII I PERELILIVANIYA KROVI.

UNCLASSIFIED

USSR

UDC 621.385.032.11:621.385.019.3

KRAPINA, M.A., SYTILIN, N.S., GOLUBEV, A.I.

"Partial Pressures Of Residual Gases In Long-Life TWTs"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, Issue 9, pp 105-109 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1A94)

Translation: The spectrum was investigated of the residual gases in experimental electrovacuum devices (based on a traveling-wave tube) with a titanium non-pulverized getter, and without it. Pumping was conducted by mechanical forevacuum and highvacuum electrical discharge pumps. The spectrum of the residual gases was investigated on a IPDO-1 device with three regimes of the tube: in a cold state, with working voltage of the heater, and in a regime of current transmission at the collector. The basic components of the ambient gases in tubes with a getter were H_2 and Ag. The pressure of Ag with current selection was substantially decreased and the pressure of H_2 remained stable in all operating conditions. The total pressure of the residual gases in tubes in a cold state is $2 \cdot 10^{-8}$ mm mercury, and in a regime of current selection is $8 \cdot 10^{-9}$ mm mercury. Without a getter, the pressure was primarily determined by argon and amounted to

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KRAPINA, M. A., et al., Elektron. tekhnika. Nauchno-tekhn. sb. Elektron SVCh, 1970, Issue 9, pp 105-109 (from RZh--Elektronika i yeye primeneniye, No 1, Jan 1971, Abstract No 1A94)

$2.5 \cdot 10^{-8}$ mm mercury (in a cold state), and the pressure of CO amounted to $5 \cdot 10^{-9}$ mm mercury. With switching on of the tube heater the CO pressure increased to $5 \cdot 10^{-8}$ mm mercury. In passing to operating conditions the partial pressure of Ar was sharply decreased ($\sim 1/10$) and the pressure of H_2 was increased from $3 \cdot 10^{-10}$ mm of mercury to $10^{-8} + 10^{-7}$ mm of mercury. In TWT

without built-in pumps and getters, a pressure of $2 \cdot 10^{-8}$ mm of mercury was maintained because of the aperture in cathode which makes it possible to conduct more effective pumping of the gases. On the basis of the results of the tests of the long life of such tubes the conclusion is made that the atmosphere of residual gases, the basic components of which are H_2 ($2 \cdot 10^{-8}$ mm mercury), CO ($5 \cdot 10^{-9}$) and Ar ($5 \cdot 10^{-9}$) are favorable for TWT operation during many thousands of hours. 5 ill. 5 ref. G.B.

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USSR

SYTIN, A. G., MAKSIMOV, A. A.

"Correlation of the Mobility of Rodents and Shrews with the Indexes of Solar and Geomagnetic Activity"

V. Sb. Solitse, elektrichestvo, zhizn' (Sun, Electricity, Life--collection of works), Moscow, Moscow University, 1972, pp 84-85 (from RZh-Astronomiya, No 3, Mar 73, Abstract No 3.51.538)

Translation: The highest mobility of these small wild beasts is observed on days when the level of solar and geomagnetic activity has a mean value with respect to the given season. During the days with large deviations of the solar and geomagnetic indexes the beasts avoid mass movements.

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USSR

UDC 612.115-06;1577.161.11+577.161.4+613.2

KUDRYASHOV, B. A., BAZAZ'YAN, G. G., LYAPINA, L. A., and SYTINA, N. P.,
Laboratory for the Physiology and Biochemistry of Blood Coagulation, Moscow
State University

"Significance of a Relative Excess of Vitamin A and Unsaturated Fatty Acids in
the Formation of Complex Heparin Compounds in Stressed Animals Kept on Natural
and Atherogenic Diets"

Moscow, Voprosy Pitaniya, No 1, 1973, pp 23-29

Abstract: Administration of linethol (a mixture of ethyl esters of unsaturated fatty acids, especially linoleic and linolenic acids, contained in linseed oil) and excessive amounts of vitamin A to rats kept on natural and atherogenic diets stimulated the complexing of heparin with fibrinogen and plasminogen after the induction of stress by ringing a loud bell for 1 1/2 minutes. An epinephrine-heparin complex was also produced in the animals that received the atherogenic rations; the amount was greater than in the control, but less than in healthy animals. Intravenous injection of the experimental animals with thrombin completely prevented death from thrombosis (100% survival rate) compared to a 36% mortality rate among the controls that did not receive linethol.

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USSR

UDC 577.17:612.015.38:636.7

SYT'KO, V. N., Vitebsk Veterinary Institute, Vitebsk

"The Effect of the Functional State of the Central Nervous System on the Content of Some Trace Elements and Metalloproteins in the Blood of Dogs"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Biologicheskikh Nauk, No 2, 1971, pp 89-94

Abstract: The effects of excitation and inhibition of the central nervous system on the metabolism of Cu, Fe, Zn, and Cd in the blood of dogs, the activity of ceruloplasmin and of carboxylate anhydrase in the blood, and saturation with Fe of transferrin the blood plasma were studied. Excitation was accomplished by administration of caffeine and inhibition by applying ether-chloroform anesthesia. In the state of inhibition the content of Fe increased, the content of Zn and Cd was reduced, and there were no significant shifts in Cu content. Inhibition was accompanied by an increase in the activity of carboxylate anhydrase in the blood, while the activity ceruloplasmin and saturation of transferrin with Fe showed no significant changes. As a result of excitation of the central nervous system, the content of Zn, Cd, Fe, and Cu in the blood and the saturation of plasma transferrin with Fe increased. The activity of carbonic anhydrase increased, while that of ceruloplasmin did not change significantly.

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UDC 577.17:591.1805;612.815;612.822.1

SYTINSKIY, I. A., Doctor of Biological Sciences

"Gamma-Aminobutyric Acid -- Inhibition Mediator in the Nervous System"

Moscow, Priroda, No 1, Jan 73, pp 20-29

Translation (Bibliographic Sketch): Igor' Aleksandrovich Sytinskiy is a senior scientist. As a neurochemist, he directs a group studying the neurochemical basis of alcoholism at the Laboratory of Nervous System Biochemistry, Leningrad State University. He is a student of the biochemist G. Ye. Vladimirov. He has written over 100 scientific works in neurochemistry and neurobiology, and the monograph Gamma-Aminomaslyanaya Kislota v Deyatel'nosti Nervnoy Sistemy (Gamma-Aminobutyric Acid in Nervous System Activity) (Leningrad, Nauka, 1972). He has completed a number of projects jointly with North Vietnamese and Guinean scientists on the clinical biochemistry of tropical diseases and on the biochemistry of animals and fruits of tropical countries.

Abstract: Gamma-aminobutyric acid (GABA) has been shown to be a mediator of nervous inhibition on the basis of six mediator criteria: 1) Synthesis in neurons -- GABA is produced in nerve endings out of glutamic acid in the presence of glutamate decarboxylase, which is formed only in neural cytoplasm;

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SYTINSKIY, I. A., Priroda, No 1, Jan 73, pp 20-29

2) localization in nerve endings of inhibition centers -- GABA has been shown to be localized in presynaptic endings contacting Deiter's nuclei, in the caudate nucleus, and others; 3) inhibition -- synaptic application of GABA inhibits cerebrocortical, central thalamic, caudate nucleus, and other central neurons; 4) presence of antagonists -- phthalilysoquinoline competes specifically with GABA for GABA-receptor sites; 5) presence of mediator inactivation mechanism -- GABA disappears within 2 seconds from intercellular fluid through mitochondrial breakdown in the presence of GABA-transaminase, or by adsorption onto membranes or nerve endings; 6) liberation in response to nerve impulse -- experiments have demonstrated heightened GABA liberation at near-sleep, during sleep in brain inhibitory tracts, and in inhibition centers in response to artificial stimulation. GABA is hypothesized to operate by combining with synaptic membrane receptor sites in such a way as to permit passage of chlorine ions, resulting in an inhibitory postsynaptic potential. GABA has found clinical use in treating epilepsy and other brain disorders, and as an anesthetic.

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USSR

SYTINSKIY, I. A., Leningrad State University

"Man Against Himself"

Leningrad, Leningradskaya Pravda, 28 Feb 73, p 3

Abstract: Alcoholism, as a continuing socio-economic problem for which no immediate practical solution exists, has been the subject of research at Leningrad State University.

The results of animal experiments and clinical observations, in combination with published data, have established an apparent genetic causative factor in alcoholism. For example, study of some thousands of mentally retarded children has revealed that 50 percent of the fathers and 7 percent of the mothers were alcoholic. Alcoholism would appear to "run in families", and even experimental animals show a predisposition to alcoholism. Neurochemists have concluded that the organism of the heavy drinker produces morphine-like alkaloids, and that the rise of alcoholism in an individual is closely analogous to the development of morphine addiction.

The immediate conclusion of the University's researchers is that research on alcoholism should proceed on the level of molecular biology; this would involve a study of the morphine-like alkaloids referred to and a search for means of accelerating the metabolism of alcohol.

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UDC 612.8.015

SYTINSKIY, I. A.

Gamma-Aminomaslyanaya Kislota v Deyatel'nosti Nervnoy Sistemy (Gamma-Aminobutyric Acid in the Activity of the Nervous System) Leningrad, Nauka Publishing House, 1972, 200 pp

Translation: Annotation: The monograph generalizes the author's experimental data and material from the literature on the problem of the functional role of GABA in the activity of the nervous system. Information is given on the synthesis, physicochemical properties, and methods of analyzing GABA in nerve tissue. The questions of its metabolism, relation with glucose metabolism, influence on brain metabolism, and properties of the enzymes of GABA metabolism are considered. Data are given on its derivatives, the topographical distribution of components of the GABA system in different sections of the central nervous system, its intracellular localization, the correspondence between GABA and the inhibiting factor, and the existence of different forms of it. Changes in the level of the GABA for different functional states of the central nervous system (B₆-avitaminosis, epilepsy, action of stimulating and inhibiting substances, extreme conditions, and so on) are considered. Attention is devoted to the physiological and pharmacological effects of GABA and its derivatives. The effectiveness of the clinical use of GABA and its derivatives

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SYTINSKIY, I. A., Gamma-Aminomaslyanaya Kislota v Dayatel'nosti Nervnoy Sistemy, 1972, 200 pp

is demonstrated. The role of GABA as a mediator in post-and presynaptic inhibition in the central nervous system is substantiated. There are 25 illustrations, five tables, and 1,459 bibliographic entries.

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SYTINSKIY, I. A., Gamma-Aminomaslyanaya Kislota v Deyatel'nosti Nervnoy Sistemy, 1972, 200 pp

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SYTINSKIY, I. A., Gamma-Aminomaslyanaya Kislota v Deyatel'nosti Nervnoy Sistemy, 1972, 200 pp

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SYTINSKIY, I. A., Gamma-Aminomaslyanaya Kislota v Deyatel'nosti Nervnoy Sistemy, 1972, 200 pp

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5/5

1/2 027 UNCLASSIFIED
TITLE--CLOSTRIDIUM TETANI LEUKOTOXIN -U-

PROCESSING DATE--04DEC70

AUTHOR--SYTNIK, I.O.

COUNTRY OF INFO--USSR

SOURCE--MIKROBIOLOGICHNIY ZHURNAL, 1970, NR 1, PP 53-57

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CLOSTRIDIUM TETANI, BACTERIAL TOXIN, LEUKOCYTOSIS, HEMOLYSIS,
CONTINUOUS CULTURE, CULTURE MEDIUM, HYALURONIDASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3007/1654

STEP NO--UR/0438/70/000/001/0053/0057

CIRC ACCESSION NO--AP0136915

UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136915

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LEUKOTOXIC, HEMOLYTIC AND LETHAL EFFECT OF TETANUS TOXIN AND THE PRESENCE OF HYALURONIDASE AND LECITHINASE IN CULTURES OF 10 STANDARD STRAINS OF CL₁ TETANI WERE STUDIED. STRAINS WERE CULTURED ON MEDIUM VF FOR DIFFERENT PERIODS. IT WAS ESTABLISHED THAT THE MAXIMUM AMOUNT OF LEUKOTOXIN IS ACCUMULATED IN SIX DAYS OF CULTURING, AND THE MAXIMUM AMOUNT OF HEMOTOXIN ON THE FIRST DAY. THE MAXIMUM ACCUMULATION OF LETHAL TOXIN IS NOTED ON THE EIGHTH DAY OF CULTURING, WHILE THE GREATEST AMOUNTS OF HYALURONIDASE WERE NOTED ON THE SIXTH DAY. NO LECITHINASE WAS DETECTED IN ANY OF THE CULTURES. SPECIFIC ANTITETANUS SERUM COMPLETELY NEUTRALIZED LEUKOTOXIN IN CULTURES OF ALL AGES. EXPERIMENTAL DATA SHOW THAT LEUKOTOXIN IS A SEPARATE TOXIC SUBSTANCE, DISTINCT FROM HEMOTOXIN AND HYALURONIDASE, AND MAY BE CONNECTED WITH THE LETHAL COMPONENT OF TETANUS TOXIN. CULTURE PERIODS VARIED FROM EIGHT HOURS TO 10 DAYS. FACILITY: TERNOPIL'SKYY MEDYCHNYY INSTYTUT.

UNCLASSIFIED

1/2 006 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--EFFECT OF HYDROTHERMAL TREATMENT CONDITIONS ON THE PROPERTIES OF
CALCIUM HYDROSILICATE FOR USE AS A FILLER OF POLYMER MATERIALS -U-
AUTHOR-(03)-MCHEDLOVPETROSYAN, O.P., SYTNIK, L.V., ZELIKIN, M.B.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. KHIM. LENINGRAD 1970, 43(3), 507-13
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--FILLER, RUBBER, LEATHER, CALCIUM COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/0596 STEP NO--UR/0080/70/043/003/0507/0513
CIRC ACCESSION NO--AP0119514
UNCLASSIFIED

2/2 006

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119514

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OPTIMUM CONDITIONS FOR PRODUCTION OF THE TITLE COMPD., USEFUL AS A FILLER IN RUBBER AND SYNTHETIC LEATHER, WERE DETD. FOR THE REACTION, DIATOMITE FROM THE DZHADZORSK DEPOSIT, CONTG. 97.5PERCENT SIO SUB2 OF AN AMORPHOUS, ACTIVE FORM, 2.0PERCENT AL SUB2 O SUB3, 1.6PERCENT MGO, 0.8PERCENT CAO, 1.1PERCENT FE SUB2 O SUB3, AND 6PERCENT VOLATILES, AND CAO HEATED OT 900DEGREES AND SLAKED WITH H SUB2 O AT 90DEGREES WERE USED IN DIFFERENT RATIOS. BEST RESULTS WERE AT CAO-SIO SUB2 EQUALS 0.5:1. OPTIMUM TEMP. IN THE AUTOCLAVE WAS 100DEGREES. THE REACTION RATE INCREASED WITH THE DEGREE OF DISPERSION; WET MILLING OF THE MATERIALS IS RECOMMENDED. THE RATE WAS BEST AT THE H SUB2 O SOLIDS RATIO OF 10-20. A HIGH REACTION RATE ALWAYS INDICATED A GOOD QUALITY FILLER. FAICLITY: NAUCH.-ISSLED, INST. OSNOV, KHIM., KHARKOV, USSR.

UNCLASSIFIED

USSR

UDC: 51

SYTNIK, V. F.

"Optimal and Statistical Models of Production Planning"

Optimal'nyye i Statisticheskiye Modeli Planirovaniya Proizvodstva [English version above], Kiev University Press, 1972, 295 pp (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V487K)

Translation: Chapter I. Models of incompleted norms. Chapter II. Statistical dependences between calendar-plan norms. Chapter III. Optimal production run lengths. Chapter IV. Analytic models of calculation of penalty reworking of parts. Chapter V. The problem of calendar planning and methods of its optimization. Chapter VI. Modeling of the production process using the methods of statistical testing (Monte Carlo method).

1/1

1/2 022 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--FASTENING METAL FLANGES TO FIBERGLASS SHELLS -U-

AUTHOR--(03)-BIGULA, G.A., GUMENYUK, V.S., SYTNIK, V.S.

COUNTRY OF INFO--USSR

SOURCE--KIEV, TEKHNLOGIYA I ORGANIZATSIYA PROIZVODSTVA, NO 1, 1970, PP
99-100

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--FIBERGLASS, SHELL STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1999/1338

STEP NO--UR/0418/70/000/001/0099/0100

CIRC ACCESSION NO--AP0123296

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123296

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS STUDY THE FASTENING OF METAL FLANGES TO FIBERGLASS SHELLS. THE FASTENING IS ACCOMPLISHED BY WINDING. A PARTICULAR FEATURE OF THIS CONSTRUCTION IS THE FASTENING OF THE FIBERGLASS SHELL, UNWEAKENED BY HOLES OR CUTS, TO METAL FLANGES USING CIRCULAR WEDGES. THE ADVANTAGE OF THIS METHOD OF FASTENING IN COMPARISON TO EXISTING METHODS IS ITS SIMPLICITY AND THE PRESENCE OF CONCENTRATED STRESS IN THE FLANGE FASTENING JOINT ALONG WITH A CLEAR DETERMINING OF THE AREA OF LOADING. THE ORIGINAL ARTICLE HAS ONE ILLUSTRATION AND TWO BIBLIOGRAPHIC ENTRIES.

UNCLASSIFIED

USSR

UDC: 621.384.664

GORIN, Yu. P., DENISOV, S. P., MITIN, A. A., STOYANOV, D. A., SYTHNIK, V. V.,
Institute of High-Energy Physics, Serpukhov

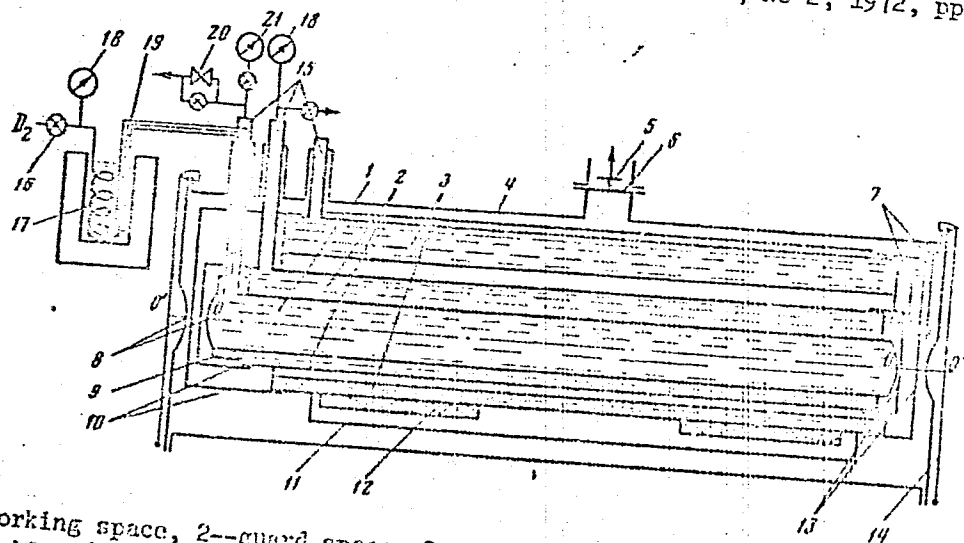
"A Target for Precise Measurements of the Cross Sections of the Interaction
of Particles With Protons and Deuterons"

Moscow, Priroda i Tekhnika Eksperimenta, No 2, Mar/Apr 72, pp 29-31

Abstract: The paper describes the design and gives the characteristics of a target used for measuring the complete cross sections of interaction of pions, kaons, and protons with protons and deuterons on the accelerator at the Institute of High-Energy Physics in Serpukhov. A diagram of the target is shown in the figure. The target is made entirely of stainless steel, with the exception of the shields and windows. The operating procedure for determining interaction cross sections is described. Measurement errors are analyzed. One figure, bibliography of four titles.

1/2

GORIN, Yu. P. et al., Pribory i Tekhnika Eksperimenta, No 2, 1972, pp 29-31



1--working space, 2--guard space, 3--nitrogen volume, 4--vacuum jacket,
5--knife, 6--diaphragm, 7--cables, 8--Mylar windows, 9--zeolite, 10--
copper shields, 11, 13--aluminized mylar shields, 12--activated charcoal,
14--plumb line, 15--filler tubes, 16--valve, 17--coil, 18--manometric
vacuum meter, 19--siphon, 20--safety valve, 21--reference instrument.

- 50 -

1/2- 041 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--OPTICAL PROPERTIES OF SUPERCONDUCTING NIOBIUM AND TITANIUM ALLOYS
-U-
AUTHOR--(05)-LEKSINA, I.YE., MOTULEVICH, G.P., SHUBIN, A.A., BARANDV, I.A.,
SYTNIKOV, V.A.
COUNTRY OF INFO--USSR
SOURCE--FIZ. METAL. METALLOVED. 1970, 29(1), 97-107
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--SUPERCONDUCTING ALLOY, NIOBIUM ALLOY, TITANIUM ALLOY, PHOTON,
OPTIC CONSTANT, LIQUID NITROGEN, SUPERCONDUCTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/0189

STEP NO--UR/0126/70/029/001/0097/0107

CIRC ACCESSION NO--AP0054985

UNCLASSIFIED

2/2 041

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054985

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OPTICAL CONSTS. N AND X WERE MEASURE AT 1-10 MU FOR NB-TI ALLOY BETA-SOLNS., CONTG. 25, 40, 52, 70, AND 85 AT. PERCENT NB. STATIC COND., RESISTANCE AT ROOM AND LIQ. N TEMP., RESIDUAL RESISTANCE CRIT. TEMP. (T SUBC) FOR TRANSITION TO THE SUPERCONDUCTING STATE, AND D. WERE DETD. ALSO FOR THESE SOLNS. THE DATA WERE USED TO CALC. BASIC CHARACTERISTICS OF COND. ELECTRONS OF THE ALLOYS. THE STUDY REVEALS THAT, IN NB, S AND D SHELL ELECTRONS INTERACT FORMING A UNIFORM COND. BAND. THIS IS MORE PRONOUNCED IN ALLOYS HAVING A HIGHER VALUE OF EFFECTIVE FREQUENCIES (V) OF ELECTRON COLLISIONS THAN THAT OF NB METAL. A CORRELATION BETWEEN N (CONC. OF COND. ELECTRONS.) AND T SUBC AND V OF ELECTRON COLLISION WITH PHOTONS IS GIVEN.

UNCLASSIFIED

USSR

UDC 669.293:537.312.62

5 2
LEKSINA, I. YE., MOTULEVICH, G. P., SHUBIN, A. A., BARANOV, I. A., SYTNIKOV, V. A.,
and SEMULEVICH, R. S., Physics Institute imeni P. N. Lebedev

"Optical Properties of Superconducting Nb-Ti Alloys"

Sverdlovsk, Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniye, Vol 29,
No 1, Jan 70, pp 97-107

Abstract: An experimental investigation of the optical properties of superconducting Nb-Ti alloys is reported. The samples were prepared from electron-beam-melted niobium (99.9) and titanium iodide; the experimental and measuring techniques are described. Optical constants n and k (κ) of electrolytically polished cubic Nb-Ti beta-solutions with atomic Nb concentrations of 25, 40, 52, 70, and 85 were measured in the 1-10 micron spectral range at room temperature. The same samples were used for determining the density ρ , the static conductance σ_{st} , the resistance R at room and nitrogen temperatures, the residual resistance R_{0st} , and the transition temperature T_c into the superconducting state. The values of basic characteristics of conduction electrons of the tested alloys (electron concentration N , mean velocity v_F on the Fermi level, total area of Fermi level S_F , effective collision frequency ν , collision

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USSR

LEKSINA, I. YE., et al, Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniye, Vol 29, No 1, Jan 70, pp 97-107

frequency of electrons with phonons ν_{ep} and with impurities ν_{ei} were determined on the basis of experimental data. The possibility is shown of obtaining N , ν , ν_{ep} and others from n and μ with the aid of normal skin-effect formulas, taking into account the nature of the relationship between the electron characteristics and the optical properties of alloys. An analysis of the results shows that: 1) the values of N are close to those of pure niobium, and only in 25% atomic Nb are these values somewhat smaller; 2) the effective collision frequency of electrons ν in alloys is $\sim 10^{15} \text{sec}^{-1}$, while the collision frequency of electrons with phonons ν_{ep} in alloys is close to that of pure niobium. Thus, the large ν values are related to large ν_{ei} values, which in alloys are two order higher than ν_{ei} of pure niobium; and 3) an anomalous dispersion $\epsilon(\omega)$ was observed in the long-wave region in all alloys. This indicates the existence of interphase transitions with the resonance frequency in the range of $\hbar\omega = 0.15 - 0.20 \text{ eV}$ for 25-70 at% Nb alloy and in the range of $\hbar\omega < 0.15 \text{ eV}$ for 85 at% Nb alloy. The possibility of the correct determination of electron characteristics of Nb-Ti alloys from measurements of their optical constants is pointed out. The dependence of the transition temperature T_s on N and ν_{ep} is presented in graphs. Orig. art. has: 7 figures, 10 formulas, and 3 tables.

2/2

USSR

UDC 576.851.55.097.29

~~SYTNYK~~, I. O., Ternopol' Medical Institute

"Clostridium Tetani Leucotoxin"

Kiev, Mikrobiologichnyy Zhurnal, Vol 32, No 1, Jan/Feb 70, pp 53-57

Abstract: The leucotoxic, hemolytic and lethal effects of tetanus toxin and the presence of hyaluronidase and lecithinase enzymes were investigated in cultures of museum strains of tetanus bacteria with different cultivation periods on medium V_f. It was established that the maximum amount of leucotoxin is accumulated on the 6th day of culturing, while for hemotoxin it was the first day, and in the case of lethal toxin - the eight day of incubation. The greatest amount of hyaluronidase was found on the sixth day of growth. Lecithinase enzyme was not observed at all. Specific antitetanus serum completely neutralized tetanus leucotoxins in cultures of all ages. The data obtained show that leucotoxin is a separate toxic substance, differing from hemotoxin and hyaluronidase, and connected to some extent with the lethal component of tetanus toxin.

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General

USSR

SYTNYK. K. M., Corresponding Member, Academy of Sciences Ukrainian SSR

"Biology and Technical Progress"

Kiev, Vestnik Akademii Nauk Ukrainskoy SSR, No 6, 1970, pp 60-69

Abstract: Progress in biology has developed new methods and opened new perspectives in the ever widening horizon of life. Using the methods of physics, chemistry and mathematics, biology has revealed the structure and synthesis of proteins, the active factors in life and the construction of polypeptide chains, chromosomes, viruses, and the genetic code. It has discovered the structure of chlorophyll and synthesized it artificially. Through separation of molecules by electrophoresis, chromatography, ultracentrifuging, X-ray analysis and microsurgery, biology has amassed a volume of data necessitating the use of computers to answer some pertinent questions. To study the vast horizons of life by advanced methods of biology, it is essential to develop adequately trained units for work in the institutes of the Academy. Particular attention should be paid to the study of lower forms of life in lakes, rivers, ponds, groves, forests and meadows, to the study of enzymes and purification of ecological conditions, to the development of aquatic life and mushrooms; and to the production of healthy grains, vegetables, fruits and meats.

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USSR

SYTNYK, K. M., Vestnik Akademii Nauk Ukrainskoy SSR, No 6, 1970, pp 60-69

Pollution and contamination of water and air are most serious: the whole globe is contaminated - the fat of penguins was found to contain pesticide, yet no pesticide was used within hundreds of kilometers of Antarctica. A transoceanic passenger plane consumes 35 tons of oxygen. The balance of nature require forestation of steppes and preservation of reservations, conservation areas and preserves. It is a sad state of affairs when the Ukraine, which was in first place in conservation, now occupies last place. In the Kirghiz SSR 4% of the territory is occupied by preserves; 1.9 percent in Armenian SSR, 1.5 percent in Azerbaydzhan SSR, 0.6 percent in Belorussian SSR and 0.27 percent in the RRFSR, and only 0.9 percent in the Ukrainian SSR.

2/2

- 40 -

USSR

UDC: 681.3

SVTS, Ch.

"Synthesis of Electric Circuit Structures by the Method of Structural Numbers With the Aid of a Digital Computer"

Avtomatiz. proyektir. v elektronike. Resp. mezhved. nauch.-tekhn. sb.
(Automated Design in Electronics. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 2, pp 11-18 (from RZh-Kibernetika, No 7, Jul 71, Abstract No TV687)

Translation: It is shown that the formation of functions of an electronic circuit can be reduced to conversion of a structural number of graphs of the passive part of an electronic circuit. Use of the method of structural binary numbers gives considerable economy of time in solving problems of conversion and reducing the required digital computer memory volume. Author's abstract.

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USSR

UDC 621.372.061

SYTS, Ch.

"Synthesis of Electronic Circuit Structures by the Method of Structured Numbers Using a Digital Computer"

Avtomatiz. proyektir. v elektron. Resp. mezhved. nauch.-tekhn. sb. (Design Automation in Electronics. Republic Interdepartmental Scientific and Technical Collection), vyp. 2, Kiev, "Tekhnika", 1970, pp 11-18

Abstract: It is shown that formation of the functions of an electronic circuit can be reduced to conversion of a structured number of graphs of the passive section of the electronic circuit. The use of the method of structured binary numbers results in a considerable savings of time when solving conversion problems, as well as economizing on the required digital computer storage volume. Four illustrations, bibliography of six titles.

1/1

1/2 039

UNCLASSIFIED
TITLE--CRACKING OF FLUOROPLASTIC TUBING -U-

PROCESSING DATE--04DEC70

AUTHOR--(05)-SYTY, YU.V., GUDIMOV, M.M., SUSHKO, A.I., TYNNYY, A.N.,
KALININ, N.G.
COUNTRY OF INFO--USSR

SOURCE--FIZ.-KHIM. MEKH. MATER 1970, 6(2), 87-90

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--FLUOROCARBON RESIN, HYDRAULIC FLUID, POLYMER HEAT EFFECT, LOW
TEMPERATURE EFFECT, RUBBER, ANISOTROPY, STRESS ANALYSIS, CRACK
PROPAGATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO-----FD70/605012/E09 STEP NO--UR/0369/70/006/002/0087/0090

CIRC ACCESSION NO--AP0140317

UNCLASSIFIED

2/2 039

CIRC ACCESSION NO--AP0140317

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0-

MINUS 60 TO PLUS 230 DEGREES RANGE, TIME, AND CONTACT WITH AVIATION
HYDRAULIC FLUID WAS STUDIED ON THE DEVELOPMENT OF CRACKS ON THE SURFACE
OF TUBING MADE OF FLUORINATED RUBBER. MOST CRACKS ARE ALIGNED ALONG THE
TUBE AXIS INDICATING THAT RADIAL RATHER THAN LONGITUDINAL STRESSES
PRODUCE THEM. THE PLASTICIZING OF THE RUBBER WITH THE HYDRAULIC FLUID
AND THE ANISOTROPY OF THE RUBBER STOCK INDUCED BY EXTRUSION ARE
CONTRIBUTING FACTORS.

FACILITY: FIZ.-MEKH. INST., LVOV, USSR.

UNCLASSIFIED

USSR

ZEL'DOVICH, Ya. P.; LEVICH, Ye. V.; SYUNYAYEV, R. A. (Institute of Applied Mathematics, USSR Academy of Sciences)

"Stimulated Compton Interaction between Maxwellian Electrons and Spectrally Narrow Radiation"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki; April, 1972; pp 1392-1408

Abstract: Effects related to stimulated Compton scattering of high-intensity radiation by free electrons (electron heating, distortion of the radiation spectrum, stimulated light pressure) diminish with a decrease of the spectral width and angular aperture of the radiation beam. The integral kinetic equation (its nucleus has been found) permits one to determine the electron heating rate and to find an analytic solution of the evolution of intense spectral lines during stimulated Compton interaction for arbitrary spectral widths and angular apertures of the radiation beam.

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1/2 016

UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--LOW TEMPERATURE METHOD FOR DEASHING PETROLEUM COKE --U--

AUTHOR--(04)--ABYZGILDIN, YU.M., SYUNYAYEV, Z.I., BAYBAZAROV, A.P., GIMAYEV,
R.N.

COUNTRY OF INFO--USSR

SOURCE--KHIM. TEKHNOL. TOPL. MASEL 1970, 15(4), 27-9

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--COKE, NITRIC ACID, LOW TEMPERATURE EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3001/0058

STEP NO--UR/0055/70/015/004/0027/0029

CIRC ACCESSION NO--AP0125893

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125893

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COKE WAS CRUSHED, TREATED WITH 63.5PERCENT HNO SUB3 AT SIMILAR TO 100DEGREES, WASHED WITH WATER AND DRIED TO SIMILAR TO 120DEGREES. THE ASH IN THE COKE TREATED 1 AND 6 HR WAS REDUCED FROM 0.84 TO 0.031 AND 0.005PERCENT, RESP. HNO SUB3 WAS RECOVERED.

FACILITY: UFM. NEFT. INST., UFA, USSR.

UNCLASSIFIED

019
UNCLASSIFIED
PROCESSING DATE--30OCT70
TITLE--PREPARATION OF GAS TURBINE FUELS OF IMPROVED QUALITY FROM
DISTILLATES FROM COKING PETROLEUM RESIDUES AT HIGH PRESSURE -U-
AUTHOR--(05)--ROGACHEVA, O.I., SYUNYAYEV, Z.I., GIMAYEV, R.N., DAVYDOV,
G.F., ZORIN, V.I.
COUNTRY OF INFO--USSR
SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (2), 6-8
DATE PUBLISHED-----70
SUBJECT AREAS--PROPULSION AND FUELS, MATERIALS
TOPIC TAGS--COKE, PETROLEUM PRODUCT, VANADIUM, SULFUR, KEROSENE, GAS
TURBINE FUEL, INDUSTRIAL PRODUCTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1996/1519
CIRC ACCESSION NO--AP0118506
STEP NO--UR/0318/70/000/002/0006/0008
UNCLASSIFIED

2/2 019
CIRC ACCESSION NO--AP0118506 UNCLASSIFIED
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KEROSENE GAS OIL DISTILLATES
WERE IMPROVED WHEN DELAYED COKING WAS CARRIED OUT AT 6 ATM. FUELS
CONTG. 0.0004PERCENT ASH AND 0.000072PERCENT V WERE THUS OBTAINED EVEN
WITH COKING INTAKE STOCK FROM HIGH S PETROLEUMS. THE YIELDS OF COKE
WERE ALSO INCREASED 6-9PERCENT. CHARACTERISTICS OF THE RESIDUES AND
FUELS OBTAINED AND EXPTL. DATA ARE PRESENTED. 7 REFERENCES.
FACILITY: UFIM. NEFT. INST., UFA, USSR.

PROCESSING DATE--30OCT70

UNCLASSIFIED

175 040

UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--"IN THE 'CHEMICAL INDUSTRY' PAVILION" -U-

AUTHOR--(02)-SYURBIS, R.K., CHEKALINA, V.YE.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, MEKHAIZATISIYA I AVTOMATIZATSIYA PROIZVODSTVA, NO. 1
1970, PP 23-27

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, BEHAVIORAL AND SOCIAL SCIENCES, MATERIALS

TOPIC TAGS--AUTOMATIC CONTROL SYSTEM, CHEMICAL INDUSTRY, PYRITE, SULFUR
DIOXIDE, INDUSTRIAL FURNACE, THERMOPLASTIC MATERIAL, PNEUMATIC
EQUIPMENT, METAL COATING, CHROMATOGRAPHIC ANALYSIS, DRILLING MACHINE,
CHEMICAL LABORATORY APPARATUS/(U)SAK6P64M AUTOMATIC CONTROL, (U)E215 8
DRILL, (U)RAN62B LABORATORY APPARATUS, (U)RRH5 CHROMATOGRAPH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/0253

CIRC ACCESSION NO--AP0100769

STEP NO--UR/0118/70/000/001/0023/0027

UNCLASSIFIED

2/3 040

CIRC ACCESSION NO--AP0100769

UNCLASSIFIED

PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A RECITAL OF SOME OF THE MORE IMPORTANT EXHIBITS ADDED TO THE "CHEMICAL INDUSTRY" PAVILION. A SYSTEM OF AUTOMATIC CONTROL FOR POWDERED PYRITE CALCINATION FURNACES HAS BEEN DEVELOPED BY THE UKRAINIAN SCIENTIFIC RESEARCH CHEMICAL INSTITUTE (UNIKHIM) TO STABILIZE THE CONCENTRATION OF SULPHUR DIOXIDE GAS. IN THIS SYSTEM, THE AMOUNT OF POWDERED PYRITES SUPPLIED TO THE OVEN IS CONTROLLED DEPENDING ON THE TEMPERATURE OF THE EXHAUST GASES WITH CONSTANT FEEDING OF PRIMARY AND SECONDARY AIR. A PICTORIAL DIAGRAM OF THE CONTROL SYSTEM AND A TEXTUAL EXPLANATION ARE PROVIDED. ANOTHER EXHIBIT IS A COMPLEX MECHANIZED PNEUMATIC TECHNOLOGY FOR PROCESSING SHEET THERMOPLASTICS, A METHOD FOR PRODUCING LARGE SIZE PLASTIC OBJECTS SUCH AS BATHTUBS, SKYLIGHTS, WASH STANDS, REFRIGERATOR BOXES, AND THE LIKE. THIS INVOLVES THE USE OF PNEUMATIC PRESSURE PLUS MECHANICAL AND HYDRAULIC STRESSES IN A RANGE OF FROM 0.5 TO 25 KG-CM PRIME2. A THIRD FEATURE OF THE PAVILION IS A MULTI PROCESS AUTOMATICALLY OPERATED LINE FOR GALVANIZED COATINGS, IN WHICH OPERATIONS IN ANY SEQUENCE CAN BE PROGRAMMED WITHOUT JALTING THE LINE. THIS LINE WAS CONSTRUCTED BY THE CENTRAL GALVANIZED COATING EQUIPMENT CONSTRUCTION BUREAU. A FOURTH IS A CONTROL SYSTEM FOR GALVANIZING PROCESSES WITH THE USE OF THE "DNIEPER" ELECTRONIC COMPUTER. THIS DEVICE COMPUTES THE OPTIMUM QUANTITY OF FUNDAMENTAL PARAMETERS OF THE TECHNOLOGICAL PROCESS, ESTABLISHES AND CONTROLS THE QUANTITY OF PARAMETERS IN THE ELECTROPLATING PROCESS, CONTROLS THE MECHANISM FOR MOVING THE LINE OF DETAILS TO BE PLATED.

UNCLASSIFIED

3/3 '040
CIRC ACCESSION NO--AP0100769 UNCLASSIFIED PROCESSING DATE--18SEP70
ABSTRACT/EXTRACT--THE NEXT EXHIBIT IS THE RKH-5 INDUSTRIAL AUTOMATIC
CHROMATOGRAPH FOR THE ANALYSIS OF ORGANIC COMPOUNDS IN COMPLEX MIXTURES
AND FOR AUTOMATIC CONTROL OF TECHNOLOGICAL PROCESSING FOR SINGLE OR
GROUPED COMPONENTS. THERE IS ALSO THE SAKGP-64M SYSTEM FOR AUTOMATIC
CONTROL OF DEPTH PARAMETERS FOR CONTINUOUS MEASUREMENT OF GEOMETRIC AND
TECHNOLOGICAL PARAMETERS IN OIL AND GAS DRILLING WITH THE E-215-8
ELECTRIC DRILL. OTHER DEVICES SUCH AS A THERMORADIATION CONVECTION
CHAMBER DRIER WITH ELECTRICAL HEATING TO SPEED UP PAINT DRYING, THE
LTK-1 LABORATORY CONCENTRATION METER FOR MEASURING SULPHURIC ACID, THE
RAN-62B AUTOMATIC FLOW REFRACTOMETER OF THE SUBMERSIBLE TYPE FOR
CONTINUOUS CONTROL AND RECORDING OF THE COMPOSITION OF FLUID PETROLEUM
AND CHEMICAL PRODUCTS, THE ARP-2 DISTILLATION ANALYZER FOR AUTOMATIC
CYCLICAL DETERMINATION OF THE FRACTIONAL COMPOSITION OF LUCID PETROLEUM
PRODUCTS. DIAGRAMS OF THE DRIER, REFRACTOMETER, AND ARP-2 ARE ALSO
SHOWN.

UNCLASSIFIED

USSR

Publications

UDC 619:616.988-07

SYURIN, V. N., IVANOVA, G. A., KRASNOBAYEV, Ye. A., and FOMIN, Yu. V.

Laboratornaya diagnostika virusnykh bolezney zhivotnykh (Laboratory Diagnosis of Virus Diseases of Animals), Moscow, Kolos, 1972, 416 pp w/ill.

Annotation

Employing the latest advances by Soviet and foreign scientists the authors of the present book summarize the existing data on the diagnosis of virus diseases of animals.

In the description of a given disease a brief description of the agent is presented. Only those data that are essential for the identification of a virus and for the establishment of its etiological role in the onset of a disease are given.

The methods of taking, preparing and storing materials and the methods of growing viruses in large developing embryos, in primary and subinoculated cultures of cells from various animal tissues and organs, etc., are described in considerable detail.

Basic attention is devoted to the executing and reading of diagnostic reactions (complement fixation reaction, neutralization reaction, agglutination inhibition reaction, etc.) and to the description of a method for conducting biological tests of receptive laboratory animals.

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SYURIN, V. N., et al., *Laboratornaya diagnostika virusnykh bolezney zhivotnykh*, 1972, 416 pp w/ill.

The book also contains both common, widespread diseases of farm animals as well as little-studied, so-called "exotic" diseases characteristic of animals on the African continent, the introduction of which to our country is not excluded as a result of the ever-developing trade and transport relations.

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Veterinary Medicine

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SYURIN, V. A. Professor (Reviewer)

Ul'trastruktura i svoystva virusa yashchura (Ultrastructure and Properties of Foot-and-Mouth Disease Virus), by V. L. Uzyumov, "Kyrgyzstan," Frunze, 1970

Moscow, Veterinariya, No 1, 1972, p 115

Abstract: The monograph is considered by the reviewer a good contribution to veterinary virology. The first of five chapters discusses the available physical and chemical methods of purifying and concentrating foot-and-mouth disease virus. Chapter 2 describes its biochemical characteristics, structure of its proteins, etc. Chapter 3 reviews the literature and the author's own studies on the ultrastructure of the virus. Chapter 4 describes its biophysical characteristics. The concluding chapter analyzes the results of research to date on the ultrastructure and properties of the virus. It also lists some of the problems that should be investigated. Some shortcomings of the book include: failure to discuss the retention of the virus in nature and in products of animal origin, uneven distribution of the material by chapters, inadequate number of illustrations, overly condensed bibliography, and poor quality of the paper, which detracts from the usefulness of the unique photographs of the virus.

1/1

Veterinary Medicine

USSR

UDC 619:616.988.73-036.2:636.5

SYURIN, V. N., OSIDZE, N. G., CHISTOVA, Z. Ya., and RODIN, Yu. V., Moscow
Veterinary Academy

"The Epizootiological Potential of Fowl Influenza Virus"

Moscow, Veterinariya, No 8, Aug 72, pp 41-43

Many reports have appeared in recent years on the isolation of antigenically different variants of fowl influenza viruses, both pathogenic and weakly pathogenic, and not only from chickens but from ducks, turkeys, geese, quail, pheasants, seagulls and other species. At the same time it was reported that a large number of isolated influenza strains varied not only with respect to antigenic properties, but also with respect to pathogenicity for birds of various ages.

Bakos and Dinter in 1949 were the first to report the presence of fowl influenza virus with antigenic variants in such strains. They succeeded in isolating in Bavaria an antigenic variant of chicken influenza virus (strain N) which possessed a strong pathogenicity for chicks but was apathogenic for adult fowl. Ten years later a similar (chick) strain of influenza virus was isolated in Scotland and was called, in accordance with international classification, A/chicken/Scotland/59.

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In the Soviet Union an analogous strain was isolated in 1967 at one of the poultry farms during an outbreak which was characterized by a rapid course, infection of the respiratory organs and of the gastrointestinal tract and a high degree of fatality. The isolated strain was thoroughly studied and designated by us according to the nomenclature of the VOZ at that time as influenza virus type A -- A/chicken/USSR/314/67.

In the 1966-1970 period in a number of countries a number of influenza virus strains were found which differed from each other by a large number of indexes (A. L. Kornilova, 1960; Ye. M. Kozhevnikov, A. A. Bobrov, 1961; N. G. Osidze, V. N. Syurin, 1970; P. F. Tsimokh, 1966; Dinter, 1964; Frano et al., 1958). It became necessary to reclassify all of the isolated fowl strains.

The following classification of fowl influenza etiologic agents was proposed by the Council on the Classification of Influenza Viruses of the VOZ in 1971 (Table).
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SYURIN, V. N., et al., Veterinariya, No 8, Aug 72, pp 41-43

Classification of Fowl Influenza Etiologic Agents
Provisional Designation
of Serotypes

A1

A2

A3

A4

A5

A6

A7

A8

Standard Strain*

A/KehP/Dar/27

A/chicken/Germany/49

A/duck/England/56

A/duck/Czechoslovakia/56

A/Currassow/South Africa/61

A/turkey/Massachusetts/65

A/duck/Ukraine/1/63

A/turkey/Ontario/6118/68

*Notation. The fowl influenza virus strain A/chicken/USSR/314/67 which we isolated in 1967 belongs to the serotype A5, the strain A/chicken/USSR/315/70, isolated in 1970 -- to the serotype A6. During an epizootic of fowl influenza in 1970-1972, 13 strains were isolated belonged to serotype A6 with strain A/chicken/USSR/315/70

This classification can hardly be considered complete. However, in the practical (diagnostic) sense, by using this table and having the diagnostic
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SYURIN, V. N., et al., Veterinariya, No 8, Aug 72, pp 41-43

tools prepared from the standard strains it becomes easier to make one's way through the chaos of isolated virus strains that are growing in number with each year. Changes in the antigenic structure of fowl influenza virus strains under natural conditions occur continually, frequently in the absence of concrete antigenic differences, so that the classification of fowl influenza viruses into types that are different from influenza viruses shared by men and horses, is impossible.

Clinically, fowl influenza can appear in various forms. Classical fowl plague, whose etiologic agent is also related to influenza virus, is characterized by a short incubation period, elevated temperature, depression, cessation of ovulation, infection of respiratory organs and of the gastrointestinal tract, diarrhea, acute cyanosis of the comb and lobes, and a high fatality rate within 24-40 hours. The death rate in these cases reaches 80-100%. And in very acute cases it is not always possible to record the enumerated symptoms of the disease. At the present time recordings are being made of enzootic outbreaks of diseases whose etiologic agents are related to fowl influenza virus but which are less severe. Symptoms are limited to depression, reduced egg yield, infection of the respiratory or gastrointestinal tract (diarrhea) with subsequent recovery

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SYURIN, V. N., et al., Veterinariya, No 8, Aug 72, pp 41-43

in two to three weeks (Lang et al., 1965; McQueen et al., 1968, Rogers, 1964). Death of infected fowl may not exceed 5-10%. Upon section of the killed sick bird one finds catarrhal infections of the mucous membranes of the respiratory pathways, catarrhal-hemorrhagic enteritis and nephritis. Influenza virus in similar cases can be comparatively easily isolated from many sick birds at the site of infection. However, in this case there is the difficulty of precisely reproducing experimental infections that are identical to the natural picture of the disease. Similar situations have been reported by many investigators. Thus, Roberts (1964) could not reproduce duck influenza with the strain A/duck/England/62, and proposed that in addition to the virus, specific stress factors are essential for the development of infection. In the experimental infection of turkeys by the strain A/turkey/Wisconsin/66, supercooling of the bird was an obligatory condition for reproducing the disease. In addition, success of an experimental reproduction of the disease often depends on the bird's age.

In 1970 at some poultry farms in Moscow Oblast, enzootic outbreaks of fowl disease were recorded almost simultaneously in populations immune to pseudopest. Outbreaks were highly contagious. The illness primarily affected

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SYURIN, V. N., et al., Veterinariya, No 8, Aug 72, pp 41-43

egg-laying hens, and there were outbreaks of the disease among young hens also. Sick fowl were depressed, refused to eat; the egg yield was reduced and diarrhea was the primary clinical symptom. Although the death rate among infected fowl did not exceed 2-5%, forced slaughter of infected fowl reached 30%. The clinical course of the disease was from 12-20 days. Changes noted in dead and sacrificed fowl were in the form of catarrhal-hemorrhagic enteritis, ovaritis, and nephritis. In the majority of cases the bird recovered after two to three weeks of illness and its productivity was restored.

Fowl at one of the farms where the pathogen and its corresponding antibody were isolated were examined. The outbreak initially occurred among 180-day old chickens vaccinated against pseudopest with the La Sota and B₁ vaccines. After 10 days it spread to several young fowl. Pseudopest as well as bacterial infections and intoxications were excluded. Section of the dead and sacrificed fowl in the agony state disclosed catarrhal-hemorrhagic enteritis, ovaritis, and nephritis.

Hemagglutinating agents were isolated from the brain, internal organs and intestine of fowl on the third day of the disease. In subsequent studies,
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all of the isolated material was identical. Virus was isolated by infecting chick embryos in the allantoic cavity and in the chorio allantois membrane as well as in chick embryo kidney tissue. Hemagglutinating activity with respect to chick erythrocytes in titers of 1:8-1:64 was found on the first passage.

The virus multiplied during the first five passages, causing death and hemorrhagic diathesis. Its pathogenecity for the embryos decreased with an increase in the number of passages, and the number of dead fowl with clear symptoms of hemorrhagic diathesis began to fall. However, the hemagglutinating activity of the virus increased by the eighth passage (titer 1:512-1:1024). The isolated strain agglutinated arithrocytes of sheep and horses also.

The strain was examined in the hemagglutination reaction with specific sera against pseudopest, classical fowl plague and various fowl influenza strains, and human influenza virus. The isolated strain was antigenically different from the fowl influenza virus variant. In a complement fixation reaction with a rat type antiserum against human influenza type A, the strain showed a clear relationship in its S antigen to the human type A influenza virus, and

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SYURIN, V. N., et al., Veterinariya, No 8, Aug 72, pp 41-43

in the neutralization and hemagglutination inhibition reaction, it resembled American turkey influenza strain A/turkey/Wisconsin/66. This strain was provisionally designated A/chicken/USSR/315/70.

Subsequently, the isolated strain was studied for pathogenic and antigenic properties. For the purpose of experimentally reproducing the infection, 19 180-day old chickens were infected with this strain by various methods: feeding a virus-containing suspension of the internal organs of sick fowl; administration of a viral suspension from the second passage intratracheally, intramuscularly, intrabursally and orally. Healthy fowl were placed with each infected group of birds for the purpose of infection. No precise clinical manifestations of the disease were noted. The experimental group was killed after 15 days. Antihemagglutinins against the homologous strain A/315/70 in titers of 1:10-1:320 were found in the blood serum of infected fowl as well as in those infected by contact. Section of 12 birds showed catarrhal-hemorrhagic enteritis and nephritis in 10 birds.

In order to study the immunobiological relationship between strain A/315/70 and the etiologic agent of Newcastle disease (strain T) and classical fowl
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SYURIN, V. N., et al., Veterinariya, No 8, Aug 72, pp 41-43

plague (strain P₅), four 21-day old chicks, immunized against Newcastle disease, were infected with strain A/315/70 in a dose of 10⁶ EID₅₀/0.2 intramuscularly and were placed next to two birds for contact. Four more fowl were infected with a highly virulent Newcastle disease virus (strain T). All of them became ill in three days and perished with the pathoanatomical changes characteristic of this infection.

No clinical signs of the disease were noted in birds infected by the virus A/chicken/USSR/315/70. The birds were killed after 17 days. Upon sectioning, catarrhal-hemorrhagic enteritis was found in two of the infected birds and one in which infection was caused by contact. The antibody titers against the virus A/315/70 in infected fowl and those infected by contact ranged within the limits 1:40-1:160. A virus identical to strain A/315/70 was reisolated from two of the killed birds (infected and contact) with the most acute catarrhal-hemorrhagic enteritis. At the same time 49-day-old birds, vaccinated against Newcastle disease aged 20 and 33 days, and having an antibody titer (hemagglutination inhibition reaction) against Newcastle disease virus within the range of 1:40 to 1:320, were infected with virus A/315/70 or Newcastle disease virus and injected with a vaccine of strain P₅ of classical

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SYURIN, V. N., et al., Veterinariya, No 8, Aug 72, pp 41-43

plague virus, and then also infected with virus A/315/70 intratracheally in the same dose. A slight depression was noted from the second to fifth day in fowl infected only with A/315/70 virus. After 14 days one of them perished with enteritis symptoms: A virus was isolated from its organs that was identical to strain A/315/70, and the antibody titers in the remaining birds against strain A/315/70 were 1:160-1:640. Characteristic pathological-anatomical changes were noted in one chick. A virus identical to A/315/70 was re-isolated from two vaccinated birds by strain P5 (antibody titers 1:80-1:320) and infected by virus A/315/70 after 10 days.

An antigenic and immunobiological connection between the isolated strain of fowl influenza A/315/70, Newcastle disease virus and the virus of classical fowl plague was not demonstrated. The isolated virus turned out to be a new antigenic variant of fowl influenza.

An epizootic potential is indicated for fowl influenza viruses, which are little known to practicing physicians and scientific associates.

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USSR

SYURIN, V. N., et al., Veterinariya, No 8, Aug 72, pp 41-43

Abstract: The article cites a modern classification of the pathogens of fowl strain A/chicken/USSR/315/70, which turned out to be a new antigenic variant of fowl influenza virus. No antigenic or immunobiological connection was found between the isolated strain, Newcastle disease virus and the virus of classical fowl plague. The data indicate the epizootiological potential of fowl influenza virus.

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USSR

UDC 619+576.8.094.29

SYUSYUKIN, A. A. and OLEYNIKOV, O. G., All-Union Scientific Research Foot-and-Mouth-Disease Institute, Pokrov, Vladimirskaya Oblast

"The Interference and Interferonogenic Properties of Foot-and-Mouth Disease Virus in Vivo"

Moscow, Sel'skokhozyaystvennaya Biologia, Vol 8, No 5, Sep/Oct 73, pp 756-760

Abstract: The interferonogenicity of foot-and-mouth disease virus attenuated by passage through calf kidney tissue culture or heat-inactivated was studied. Interference, measured as a reduction of the mean lethal dose titer and delay of death, was observed in adult mice for both forms of virus, but not in newborn mice or guinea pigs. In calves attenuated virus did not affect the formation of the primary aphtha after infection, but did increase the incubation period by 24-42 hours. Serous interferon was found, as indicated by the fact that it decreased the titer in grown mice. The formation was short-lived, and peaked at 18 hours. The results are said to show that the manifestation and intensity of interference depend on the origin of the virus, the age and type of animal and the interval between virus inoculations.

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USSR

OLEYNIKOV, O. G., and SYUSYUKIN, A. A., All Union Scientific Research Institute of Foot-and-Mouth Disease, Ministry of Agriculture USSR, Vladimir

"Interference and Interferon Producing Properties of Inactivated Foot-and-Mouth Disease Virus"

Moscow, Voprosy Virusologii, No 5, 1971, pp 625-626

Abstract: A model of foot-and-mouth disease virus A22 (strain 663) in calf kidney cells was used to study the effect of heat inactivation (37°C), pH 7.4 to 7.6 or 9.0, on the interference and interferon producing activity of virulent and attenuated strains of the virus. The attenuated strain lost its infectiousness sooner than the virulent strain. However, inactivation under the indicated conditions had no effect on the interferon-producing activity of the virulent strain, but it greatly decreased that of the attenuated strain. These differences are probably related to the genetic characteristics of the strains.

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USSR

UDC 619:616.988.43-094:576.8

UBRANTSEV, N. M., SYUSYUKIN, A. A., SERGEYEV, V. A., and PROKHOROV, V. V.,
All Union Scientific Research Foot-and-Mouth Disease Institute and All Union
Scientific Research Institute of Veterinary Virology and Microbiology

"The Effect of the Passaging Temperature on Properties of Attenuated Foot-
and-Mouth Disease Virus"

Moscow, Veterinariya, No 1, Jan 71, pp 37-39

Abstract: The epizootic strain (No 663) of A2 foot-and-mouth disease virus was passaged in a culture of calf kidney cells 5 times at 37°C and 84 times at 24°C. The population and clonal lines of virus passaged 5 times at 37°C were pathogenic for mice and guinea pigs, capable of replicating at 37°C and 40°C, and had no cytopathic activity at 40°C. However, by the 84th passage at 24°C the virus was incapable of replication at 40°C, and several clones did not replicate at 37°C. After the virus was successively passaged at 30°C (30 times), 34°C and 37°C (10 times each) it gradually regained its lost properties, but could not replicate at 40°C. Thus, passaging foot-and-mouth disease virus at low temperatures and then culturing it at high temperatures produced attenuated variants with the properties of vaccine strains.

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USSR

UDC 636+576.8.094.29

SYUSYUKIN, A. A., and OLEYNIKOV, O. G., All-Union Scientific Research
Institute of Foot-and-Mouth Disease, Vladimir

"Interference and Interferon Producing Properties of Foot-and-Mouth Disease
Virus in vitro"

Moscow, Sel'skokhozyaystvennaya Biologiya, No 5, 1971, pp 764-768

Abstract: The interference and interferon producing properties of foot-and-mouth disease virus vary with its origin, methods of cultivation, and experimental conditions. Virus A22 attenuated in calf kidney cells at 24°C as an interferon inducer (150th passage) markedly reduced the accumulation of virulent homologous virus and suppressed its cytopathic effect when grown in the same culture at 37°C. The cells were completely protected against the cytopathic effect when the interval between virus inoculations was increased to 36 hours. Interferon production was lower than at 37°C and lowest at 40°C. The virulent virus induced less interferon in the culture than did the attenuated strain. Calf kidney cells and cattle lingual epithelial cells in response to infection with attenuated virus acquired partial resistance to infection with virulent virus while interferon accumulated in the culture fluid. Cultures of pig kidney cells and newborn

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SYUSYUKIN, A. A., and OLEYNIKOV, O. G., Sel'skokhozyaystvennaya Biologiya,
No 5, 1971, pp 764-768

hamster kidney epithelial cells did not produce interferon when infected
with foot-and-mouth disease virus.

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UDC 619:616.988.43:576.809.8

KOZHAYEVA, G. I., PROSTYAKOV, A. P., TOKARIK, E. F., and SYUSYUKIN, A. A.,
All Union Scientific Research Foot-and-Mouth Institute

"Purification of Cultural Foot-and-Mouth Disease Virus"

Moscow, Veterinariya, No 1, Jan 71, pp 41-42

Abstract: The starting material was A22 virus replicated in a monolayer of primary trypsinized pig epithelial and calf kidney cells. The virus-containing material was subjected to a series of procedures beginning with freezing, thawing, and centrifugation and ending with filtration through Sephadex G-100 or G-200, both in order to obtain different fractions and to remove proteins and nucleic acids. Some 99.3% of the ballast proteins and 99.2% of the tissue nucleic acids were thus removed. Despite the many manipulations of the virus, its infectious titer at the end was higher than in the original suspension. The purified preparation can be lyophilized for the accumulation of virus material or for deproteinization in order to obtain infectious RNA with a molecular weight no lower than 100,000.

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UDC 619:616.988.43-084.47

SYUSYUKIN, A. A., KRAVETS, I. K., TSVETKOVA, N. Ye., and PAVLOV, V. G.,
All-Union Scientific Research Institute of Food-and-Mouth Disease

"Immunogenic Properties of an Experimental Food-and-Mouth Disease Vaccine
Moscow, Veterinariya, No 5, May 71, pp 40-42

Abstract: The results of a study of the immunogenic character of an inactivated vaccine prepared from foot-and-mouth disease virus A22, strain 603, grown in BNK cells, are reported. Virus from the 6-7th and 102-103 passages was used in the form of a centrifuged cultural liquid. The vaccine used consisted of virus (50%), a 6% solution of aluminum hydroxide (40%), and glycine (10%). After adsorption of the virus, the pH of the mixture was adjusted with glycine buffer to 8.6-8.8, and formalin was added at a final concentration of 0.05%. The virus was inactivated for 48 hrs at 26°C. After the inactivation, glycerin was added, and in some series, saponin. The vaccine was tested in cattle and guinea pigs. It was found that all six test vaccines had high immunogenic properties. In five test vaccines, the LD₅₀ for guinea pigs was 0.15-0.19 ml, and only in one test vaccine was it 0.26 ml. Inactivated vaccines with saponin (2.5 mg per 10 ml vaccine) from virus of the 6th and 102d passages grown from a single-layer cell culture under stationary

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SYUSYUKIN, A. A., et al, Veterinariya, No 5, May 71, pp 40-42

conditions was tested on guinea pigs. The vaccine from virus of the 6th passage was three times more effective than that from virus of the 102d passage. The LD₅₀ in the first case was 0.25 ml, that in the second case was 0.76 ml. In general, it was found that vaccine from virus of the earlier passages is more immunogenic than vaccine from virus of later passages.

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UDC 619+576.8.094.29

SYUSYUKINA, M. S., SYUSYUKIN, A. A., SERGEYEV, V. A., and
KALUGINA, T. Ye., "All-Union Scientific Research Institute of
Foot-and-Mouth Disease

"Culturing Foot-and-Mouth Disease Virus in VNK-21 Kidney Cells
of Immune Animals"

Moscow, Sel'skokhozyaystvennaya Biologiya, Vol 6, No 1, 1971,
pp 136-138

Abstract: The possibility of culturing foot-and-mouth disease
virus in monolayer cultures and in suspensions of kidney cells
of immune cattle was studied. For this purpose cows which had
recovered from the disease, vaccinated cows, and control cows
were used as donors of cells on which laboratory strains of A₂₂
and C viruses were cultured. Viruses grew equally well on
kidney cell layers and on cell suspensions regardless of whether
the donor was or was not immune to foot-and-mouth disease.
The final concentration of viruses in the media was approximately
the same, and their immunogenic properties were practically
identical.

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USSR

Gerontology

UDC 612.82.8:612.67

MIRHAYLOVA-LUKASHEVA, V. D., BUTKO, G. I., LEDENIEVA, A. I., PUSKARCENOK, A. A.,
AND SYUSYUKIN, V. A., Sector of Gerontology, Academy of Sciences Belorussian
SSR, Minsk

"Peculiarities of the Functional Activity of the Central Nervous System in the
Aging Process"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Biologicheskikh Nauk, No 6, 1972,
pp 87-92

Translation of Russian Abstract: The relation between the changes in the
higher sections of the nervous system and the functional activity of other ner-
vous systems in an organism during aging were studied in experiments in animals
of various age and in men. The experimental results revealed that both the
transportability of nervous processes and the intensity of active inhibition
were decreased and that the functional activity of many of the systems of an
organism and their reactivity to pharmacologic substances administered were
changed in the aging process. The variation in reactivity of old and young
animals to pharmacologic substances is caused by age changes in neurohumoral
regulations. The changes in cerebral cortex during aging are functional,
biochemical, and morphological,--and they lead to transformation of subordinated
cortical-subcortical interrelations and of integrated mechanisms, which in
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MIKHAYLOVA- LUKASHEVA, V. D., Izvestiya Akademii Nauk SSSR, Seriya Biologicheskikh Nauk, No 6, 1972, pp 87-92

turn leads to a decrease in the central control, to changes in relations between the nervous centers and periphery, and to disturbances in regulation of all systems of the organism. These disturbances in functional systems result in faster wearing out of the organism, i.e., aging.

USSR

UDC 619+576.8.094.29

SYUSYUKINA, M. S., SYUSYUKIN, A. A., SERGEYEV, V. A., and
KALUGINA, T. Ye., All Union Scientific Research Institute of
Foot-and-Mouth Disease

"Culturing Foot-and-Mouth Disease Virus in VNK-21 Kidney Cells
of Immune Animals"

Moscow, Sel'skokhozyaystvennaya Biologiya, Vol 6, No 1, 1971,
pp 136-138

Abstract: The possibility of culturing foot-and-mouth disease virus in monolayer cultures and in suspensions of kidney cells of immune cattle was studied. For this purpose cows which had recovered from the disease, vaccinated cows, and control cows were used as donors of cells on which laboratory strains of A₂₂ and C viruses were cultured. Viruses grew equally well on kidney cell layers and on cell suspensions regardless of whether the donor was or was not immune to foot-and-mouth disease. The final concentration of viruses in the media was approximately the same, and their immunogenic properties were practically identical.

1/1

USSR

UDC 669.295:539.292

SYUTKIN, N. N., VYATKIN, N. N., Institute of Physics of Metals,
UNTs of the Academy of Sciences USSR

"Features of the Allotropic Transformation of Titanium Observed
by Means of a Field-Emission Microscope"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 32, No 3,
Sep 71, pp 515-519

Abstract: The features of allotropic transformation in crystals (size $\sim 0.3 \mu$) of pure titanium and the kinetics of the recrystallization process were investigated by the method of field-emission microscopy, according to the schema α -state $\rightarrow \beta$ -state \rightarrow heating up to 200-300 degrees higher than $T_{\beta} \rightarrow$ temperature reduction to T_{β} . The results are discussed by reference to field-emission pictures of α - and β -state titanium. At room temperature, the investigated titanium specimens showed a hexagonal lattice, during the heating process a recrystallization took place, and instead of several crystals a single crystal developed. Repeated $\alpha \rightleftharpoons \beta$ transitions with subsequent high-temperature annealing

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SYUTKIN, N. N., et al, Fizika Metallov i Metallovedeniye, Vol 32,
No 3, Sep 71, pp 515-519
led to emergence of new grains in the specimens. The observed
phenomenon is explained as recrystallization brought about by
phase cold hardening. 3 illustrations, 6 bibliographic
references

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S. M. LYALIKOV, N. N., and P. P. KUKULOV, V. A., Institute of Physics,
Academy of Sciences USSR
"Microcrystals of Titanium on Tungsten"

Sverdlovsk, Zhurnal Metallov i Metallovedeniye, Vol 30, No 2, 1978, pp 561-566.

Abstract: The possibility is demonstrated of growing microcrystals of titanium
by condensation onto a single crystal tungsten substrate. When heated, the
microcrystals produced undergo $\alpha \rightarrow \beta$ conversion. Recrystallization of the ti-
tanium occurs upon cyclical transitions through the phase conversion tempera-
ture with subsequent heating to above T_β .

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1/2 009 UNCLASSIFIED PROCESSING DATE 10/10/70
TITLE--CURRENT ALGEBRA, POLE DOMINANCE AND MESON BARYON INTERACTIONS -U-
AUTHOR--(02)-RADUTSKIY, G.M., TABACHENKO, A.N.
COUNTRY OF INFO--USSR
SOURCE--TEORETICHESKAYA I MATEMATICHESKAYA FIZIKA, 1970, VOL 3, NR 3, PP
353-363
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--MESON INTERACTION, BARYON, LAGRANGE EQUATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1245 STEP NO--UR/0646/70/003/003/0353/0363
CIRC ACCESSION NO--AP0124897
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0124897

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FORMULATION OF THE HARD PION
METHOD PROPOSED BY R. ARNOWITT ET AL. IS GENERALIZED TO SYSTEMS
INCLUDING NUCLEONS AND THE ANGLE (1236) RESONANCE. THE EFFECTIVE
INTERACTION LAGRANGIANS ARE CONSTRUCTED WHICH ALLOW ONE TO CALCULATE THE
AMPLITUDES OF DIFFERENT MESON BARYON REACTIONS. FACILITY:
TCMSKIY POLITEKHNICHESKIY INSTITUT. FACILITY: NEI YADERNOY
FIZIKI, ELEKTRONIKI I AVTOMATIKI.

UNCLASSIFIED

USSR

UDC 621.923.669.295

KHARCHENKO, I. V., BELETSKIY, V. M., and TABACHNIK, V. I.,

"Grinding VT16 and VT22 Titanium Alloys"

Moscow, Stanki i Instrument, No 2, Feb 74, pp 33-34

Abstract: The grinding of VT16 and VT22 titanium alloys using different types of grinding wheels and cutting-cooling liquids was studied for plane grinding with lateral feed, circular outer grinding, and eccentric grinding. Data are given for the different grinding parameters, where for example it was established that, when grinding with a narrow KZ25SH1K6 wheel, the magnitude of specific pressure (P_s) for VT22 alloy was approximately 1.5 times greater, and for VT16 alloy -- 1.2 times greater, than for VTZ-1 alloy. It was determined for all the grinding methods studied that wheel velocity is the most significant parameter with the optimum wheel velocity being 36 m/sec. Best productivity was accomplished with a monocorundum grinding wheel and amounted to 2.3 mm³/mm³. Results of this study were verified and have been introduced into production. Three figures.

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USSR

UDC: 539.21:536.42

TABACHNIKOV, A. G.

"Sublimation Curve for Nitrogen Tetroxide"

Tr. vses. nauchno-tekhn.konferentsii po termodinamike. Leningr. tekhnol. in-t kholodil'n. prom-sti (Works of the All-Union Scientific and Technical Conference on Thermodynamics. Leningrad Technological Institute of the Refrigeration Industry), Leningrad, 1970, pp 22-29 (from RZh-Fizika, No 9, Sep 70, Abstract No 9Ye480)

Translation: The author calculates the values of the vapor pressure, the latent heat of sublimation of N_2O_4 , the latent heat of sublimation to pure N_2O_4 at temperature T , and the degree of dissociation in the 200-262°K temperature range.

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UDC: 621.373:421.13(088.8)

BELOV, V. L., TABACHNIKOV, I. Ya.

"A Self-Excited Quartz Crystal Oscillator"

USSR Author's Certificate No 263685, filed 9 Dec 67, published 4 Jun 70
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D487 P)

Translation: This Author's Certificate introduces a self-excited quartz crystal oscillator based on a transistor with parametric frequency multiplication. The oscillator contains an active element in the form of a transistor, a tank circuit, a quartz resonator connected in a feedback circuit between the emitter and the common tie-point of the tank capacitors, and also a power supply. To increase the conversion coefficient and improve emission frequency stability, the self-oscillator is equipped with an additional tank circuit tuned to a harmonic of the quartz resonator frequency. This auxiliary tank circuit is connected through a decoupling capacitor to part of the inductance of the main tank circuit and to the collector of the transistor. One illustration. V. P.

USSR

UDC: 621.374.4:621.382.2

TABACHNIKOV, I. Ya., FRID, I. R., KAUSOV, S. F., VIZEL', A. A.

"Calculation of the State of a Varactor in a Parallel Frequency Multiplication Circuit"

V sb. Poluprovodn. pribory i ikh primeneniye (Semiconductor Devices and Their Application--collection of works), Vyp. 23, Moscow, "Sov. radio", 1970, pp 172-191 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10D25)

Translation: Formulas are derived which can be used to determine the efficiency, input and output impedance, and also the external bias voltage across the semiconductor diode, in a varactor with gradual and sharp junction from the breakdown voltage, maximum frequency and capacitance for doubling, tripling and quadrupling the frequency in a parallel circuit. A theoretical comparison is made of the effectiveness of a semiconductor diode with sharp and gradual junction in a frequency doubler. Experimental investigations of semiconductor diodes with abrupt junction in a frequency tripler up to 10 GHz, and semiconductor diodes with gradual junction in a doubler in the decimeter wavelength range showed agreement with the proposed computational formulas. Bibliography of nine titles. Authors' abstract.

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1/2 008 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--A QUARTZ SELF OSCILLATOR -U-
AUTHOR--BELOV, V.L., TABACHNIKOV, I.YA.
COUNTRY OF INFO--USSR
SOURCE--PATENT NO 263685
REFERENCE--MOSCOW, OKTRIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI NO 8,
DATE PUBLISHED-----70
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.
TOPIC TAGS--PATENT, QUARTZ, TRANSISTORIZED OSCILLATOR, PARAMETRIC
RESONANCE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1095 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0112217
UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AA0112217

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS AUTHOR'S CERTIFICATE INTRODUCES A QUARTZ SELF OSCILLATOR BASED ON A TRANSISTOR WITH PARAMETRIC FREQUENCY MULTIPLICATION. THE UNIT CONTAINS AN ACTIVE ELEMENT IN THE FORM OF A TRANSISTOR, A RESONANCE TANK, A QUARTZ RESONATOR CONNECTED IN A FEEDBACK CIRCUIT BETWEEN THE EMITTER AND THE POINT OF COMMON CONNECTION FOR THE TANK CAPACITORS, AND A POWER SUPPLY. THE OSCILLATOR DIFFERS BECAUSE THE CONVERSION COEFFICIENT IS INCREASED AND THE FREQUENCY STABILITY OF THE GENERATED OSCILLATIONS IS IMPROVED BY USING AN ADDITIONAL TANK CIRCUIT TUNED TO A HARMONIC OF THE QUARTZ RESONATOR FREQUENCY. THE RESONATOR IS CONNECTED THROUGH AN ISOLATING CAPACITOR TO PART OF THE INDUCTANCE OF THE MAIN TANK CIRCUIT AND TO THE COLLECTOR OF THE TRANSISTOR.

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USSR

Oscillators and Modulators

BELOV, V. L., TABACHNIKOV, I. Ya.

UDC 621.373.5

"A Quartz Self-Oscillator"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy, Tovarnyye Znaki,
No 8, 10 Feb 70, p 41, Patent No 263685, Filed 9 Dec 67

Translation: This Author's Certificate introduces a quartz self-oscillator based on a transistor with parametric frequency multiplication. The unit contains an active element in the form of a transistor, a resonance tank, a quartz resonator connected in a feedback circuit between the emitter and the point of common connection for the tank capacitors, and a power supply. The oscillator differs because the conversion coefficient is increased and the frequency stability of the generated oscillations is improved by using an additional tank circuit tuned to a harmonic of the quartz resonator frequency. The resonator is connected through an isolating capacitor to part of the inductance of the main tank circuit and to the collector of the transistor.

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KIRZHNER, V. M., TABACHNIKOV, M. I.

"One Problem of Optimal Selection"

Vychisl. mat. i Vychisl. Tekhn. [Computer Mathematics and Computer Equipment -- Collection of Works], No 2, Khar'kov, 1971, pp 20-25 (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V545 by the author's).

Translation: The problem of minimization of the functional

$$f(n_1) = \varphi(n_1) \sum_A p_i + \varphi(n - n_1) \sum_B p_j, \\ (|A| = n_1, |B| = n - n_1, p_i \geq 0)$$

and one technical application are studied.

USSR

UDC: 518.5:681.3.06

TABACHNIKOV, M. I.

"Solution of Redefined Systems of Linear Algebraic Equations by the Method of Rotations"

V sb. Mashiny dlya inzh. raschetov (Machines for Engineering Calculations--collection of works), vyp. 4, Kiev, 1971, pp 27-31 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V981)

Translation: A program is compiled for solving redefined systems of linear equations

$$Ax = b_s \quad (s = 1, \dots, k), \quad i = m, \quad j = n, \quad (1)$$

where $A = (a_{ij})_{i,j=1}^m$ is a rectangular matrix of m lines and n columns ($m > n$), b_s are m -dimensional vectors (k redefined systems with identical matrix A and different right members b_s , $1 \leq s \leq k$ are solved simultaneously). System (1) is solved as follows: n -dimensional vectors x_s are sought which minimize the Euclidean norms $\|Ax - Bx\|$ ($s = 1, \dots, k$). The vector-solutions x_s are printed out with the corresponding mean-square deviations

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TABACHNIKOV, M. I., Mashiny dlya inzh. raschetov, vyp. 4, Kiev, 1971,
pp 27-31

$$\sigma_s = \sqrt{\frac{\sum_{j=1}^m \left(\sum_{i=1}^n a_{ij} x_s^{(j)} - b_s^{(i)} \right)^2}{m-1}}$$

$(s = 1, \dots, k).$

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